AMENDMENTS TO THE CLAIMS:

This listing of claims will replace prior versions and listings of claims in the application:

Claims 9, 14, 15, 22, 24, 32-33, 36, 39 and 44 have been amended as follows: Underlines indicate insertions and ~~strikethrough~~ indicate deletions. Claims 2-8, 10, 16, 25 and 40 are cancelled.

Listing of claims:

1. (original) A stem cell expansion factor comprising a blocker which reduces expression level of at least one gene normally limiting HOX-induced expansion of stem cells, whereby reducing expression level of said gene enhances expansion of stem cells containing a HOX peptide.

2-8. (cancelled)

9. (currently amended) A nucleic acid construct for enhancing stem cells expansion, said construct comprising a first nucleic acid sequence for expression of a HOX peptide, wherein said peptide being able to cross a cell membrane, and a second nucleic acid sequence blocking expression of at least one gene normally limiting HOX-induced expansion of stem cells, whereby reducing expression level of said gene in the presence of a HOX peptide enhances expansion of stem cells, wherein said gene is a PBX1 gene.

10. (cancelled)

11. (original) The construct of claim 9, wherein said HOX peptide is a HOXB4 peptide.

12. (original) The construct of claim 9, wherein said stem cells are hematopoietic stem cells.

13. (original) The construct of claim 12, wherein said hematopoietic stem cells are human or mouse hematopoietic stem cells.

14. (currently amended) The construct of claim ~~10~~9, wherein said second nucleic acid sequence blocking PBX1 expression is an antisense DNA to PBX1.

15. (currently amended) A composition for enhancing expansion of stem cells comprising ~~an amino acid sequence having the activity of~~ a HOX peptide, wherein said peptide being able to cross a cell membrane, and a blocker which reduces expression level of at least one gene normally limiting HOX-induced expansion of stem cells, whereby reducing expression level of said gene in the presence of a HOX peptide enhances expansion of stem cells, wherein said gene is a PBX gene.

16. (cancelled)

17. (original) The composition according to claim 15, wherein said amino acid sequence consists of a HOXB4 peptide.

18. (original) The composition according to claim 15, wherein said amino acid sequence comprises an HIV-derived peptide able to cross a cell membrane.

19. (original) The composition according to claim 18, wherein said HIV-derived peptide consists of a NH_2-terminal protein transduction domain (PTD) from a transactivating protein.

20. (original) The composition according to claim 15, wherein said stem cells are hematopoietic stem cells.

21. (original) The composition according to claim 20, wherein said hematopoietic stem cells are human or mouse hematopoietic stem cells.

22. (currently amended) The composition according to claim ~~16~~15, wherein said blocker is a nucleic acid sequence blocking PBX expression.

23. (original) The composition according to claim 22, wherein said blocker is an antisense DNA to PBX1.

24. (currently amended) A composition for enhancing expansion of stem cells comprising a nucleic acid sequence for over-expression of a HOX peptide, and a blocker which reduces expression level of at least one gene normally limiting HOX-induced expansion of stem cells, whereby reducing expression level of said gene in the presence of an overexpressed HOX peptide enhances expansion of stem cells, wherein said gene is a PBX gene.

25. (cancelled)

26. (original) The composition according to claim 24, wherein said HOX peptide is a HOXB4 peptide.

27. (original) The composition according to claim 24, wherein said stem cells are hematopoietic stem cells.

28. (original) The composition according to claim 27, wherein said hematopoietic stem cells are human or mouse hematopoietic stem cells.

29. (original) The composition according to claim 24, wherein said blocker is a nucleic acid sequence blocking PBX expression.

30. (original) The composition according to claim 29, wherein said blocker is an antisense DNA to PBX1.

31. (original) A method for enhancing expansion of stem cells, which comprises treating stem cells with an effective amount of a factor as defined in claim 1, or an

effective amount of a composition as defined in claim 15 for a time sufficient to allow expansion of said stem cells.

32. (currently amended) The method of claim 31, wherein said HOX peptide is a HOXB4 peptide ~~and said gene is PBX~~.

33. (currently amended) The method of claim 31, further comprising a step of treating said stem cell ~~with an amino acid sequence having the activity of~~ a HOX peptide encoded by a HOX nucleotide sequence.

34. (original) The method of claim 33, wherein said amino acid sequence consists of a HOXB4 peptide.

35. (original) The method of claim 33, wherein said amino acid sequence comprises an HIV-derived peptide able to cross a cell membrane.

36. (currently amended) The method of claim 35, wherein said_HIV-derived peptide consists of a NH_2-terminal protein transduction domain (PTD) from a transactivating protein.

37. (original) The method of claim 31, wherein said stem cells are hematopoietic stem cells.

38. (original) The method of claim 37, wherein said hematopoietic stem cells are human or mouse hematopoietic stem cells.

39. (currently amended) The method of any_one of claims 31 to 38, wherein said stem cells are treated *in vitro*, *in vivo* or *ex vivo*.

40. (cancelled)

41. (previously presented) A method for restoring hematopoietic capability of a patient, which comprises administering a therapeutical effective amount of a factor as defined in claim 1.

42. (previously presented) A method for restoring hematopoietic capability of a patient, which comprises administering a therapeutical effective amount of a construct as defined in claim 9.

43. (previously presented) A method for restoring hematopoietic capability of a patient, which comprises administering a therapeutical effective amount of a composition as defined in claim 15.

44. (currently amended) A method for enhancing expansion of stem cells, which comprises treating stem cells with an effective amount of a factor as defined in claim ~~15~~ 1 for a time sufficient to allow expansion of said stem cells.